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Diagnosing disease before symptoms

By Stephen Wampler
NEWSLINE STAFF WRITER

Doctors may some day be able to tell whether individuals have been exposed to a disease-causing pathogen well before they develop symptoms.

Rapid diagnosis of infection one to two days after exposure, rather than waiting days to weeks for symptoms to appear, is the aim of a new national security research initiative at the Laboratory.

This new approach to disease detection, called “pathomics,” is the focus of a multi-million dollar Livermore research effort that spans seven directorates and several disciplines.

Pathomics is, in effect, the study of the mol-



JACQUELINE MCBRIDE/NEWSLINE

Ken Turteltaub, head of Biology’s Biodefense Division, is one of the team members on the pathomics project.

ecular basis of infectious disease. It focuses on the changes in protein levels and other molecules

See **PATHOMICS**, page 7

National Academies panel gets input on contract criteria for science & technology

A study committee from the National Research Council (NRC) of the National Academies held a meeting on Monday with Lab managers and employees, which included a public session to gather information relevant to the upcoming contract competitions for both LLNL and LANL.

The committee’s charge from the National Nuclear Security Administration is to advise the agency on the development of criteria for evaluating the capabilities of bidders for the LANL and LLNL management contracts for managing science and technology at the Labs. NNSA wants to ensure it “protects and nurtures the world-class science” at Livermore and Los Alamos, said committee chair Paul Jennings in his opening remarks.

The criteria will be used by NNSA in “requests for proposals” or bids to manage the two weapons labs. For the first time, the contracts to manage the weapons labs for NNSA and the Department of Energy are to be competitively bid. Congress mandated last year that federal contracts, such as those to manage Livermore, Los Alamos and Lawrence Berkeley, which had not been competitively bid in more than 50 years, would have to be competed.

Since their founding more than 50 years ago, the University of California (UC) has managed both Liv-

See **ACADEMIES**, page 8

Lab security organization takes on new directions, new roles and new look

Editor’s note: Each year Lab employees must complete their annual security refresher. The information in this article should prove helpful in recognizing the new roles, new faces, new look, new name and new directions in security at the Lab.

By David Schwoegler
NEWSLINE STAFF WRITER

On June 13, 2003, Laboratory Director Michael Anastasio made a major reorganization of the Laboratory’s security activities, creating a new Safeguards and Security Organization. Appointed to head it was Dave Leary, who definitely didn’t qualify as a new face. Leary’s been around since 1973, and in the mid-1980s he served as the department head of Safeguards and Securi-

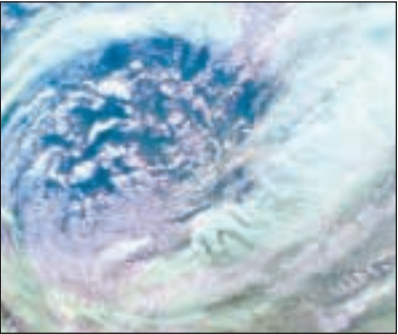
See **SECURITY**, page 5

New method found for measuring ozone

By Anne M. Stark
NEWSLINE STAFF WRITER

A team of scientists, including two from the Laboratory, have identified a new method to measure the amount of stratospheric ozone that is present at any given time in the upper troposphere.

Working with researchers from the National Oceanic and



Atmospheric Administration, the University of Colorado, the Jet Propulsion Laboratory, the National Center for Atmospheric Research, NASA Ames Research Center and Harvard University, atmospheric scientists Cyndi Atherton and Dan Bergmann successfully quanti-

See **OZONE**, page 7

Discrepancies found in seismic hazard estimates

By Charles Osolin
NEWSLINE STAFF WRITER

Current methods for estimating the ground-shaking effects of major earthquakes could underestimate their severity and lead to inadequate seismic protection of new and existing buildings, according to a pioneering study of earthquake hazards at three University of California campuses — Santa Barbara (UCSB), Riverside (UCR), and San Diego (UCSD).

The study, reported in the April issue of the journal *Soil Dynamics and Earthquake Engineering*, was conducted in a five-year collaborative research project

initiated and directed by François Heuze, a geotechnical engineer at LLNL. Seven UC campuses participated in the study, known as the Campus Earthquake Program.

The researchers found wide discrepancies between their own seismic hazard estimates for the three campuses and those produced by current estimating techniques used for designing new buildings and retrofitting existing buildings.

“The biggest weakness in the current state of the practice for seismic hazard assessment,” said Ralph

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Professional of the week

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A brief history of Lab security

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AD search committees named

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LAB COMMUNITY NEWS

Weekly Calendar

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Tuesday
13

Water aerobics classes are back. Enjoy low impact aerobics outdoors. This co-ed class is designed to use the water's natural buoyancy and resistance to improve cardiovascular endurance, muscle tone, strength and coordination. Classes are offered in five-week sessions and are held on Tuesdays and Thursdays from 12:05 - 12:55 p.m. The cost per session is \$40. Session 1 begins today and will run through May 13. Sign up in the LLESA Office, Bldg. 415, room 142, Monday - Friday 10 a.m. - 4:30 p.m.

Wednesday
14

A Fidelity retirement counselor will be available today to assist with: assessing the current state of retirement accounts, learning how to plan asset allocation and diversify investments within retirement accounts, as well as identifying income strategies when planning retirement. Fidelity Mutual Funds are available to UC's workplace retirement plan participants in addition to the UC-managed investment pools. If you would like to set up a one-on-one consultation, call 800-642-7131. When calling be sure to specify that you are an LLNL employee.



As part of the newly-formed collaborative partnership between LLNL and the Naval Postgraduate School in Monterey, Professor Wendell Nuss of the Department of Meteorology at NPS will be speaking on **"Mesoscale Meteorology and Predictability,"** on April 20. The lecture will be in the Bldg. 123 auditorium at 3 p.m. and a reception will follow. This is the first in a series of monthly lectures that will take place at both the Lab and at NPS. For further information, contact Harry Radousky, 2-4478, or Brenda Foster, 3-8257, of the University Relations Program.

The Vaqueros Del Mar Dive Club present its **25th Annual Seafood Festival and Photographic Print Auction** on Saturday, June 26, from 6 to 10 p.m. at the Livermore Rod & Gun Club, 4000 Dagnino Road, Livermore. The group will be hosting its 2nd annual Photographic Print Auction during the festival. Many prints will be on display. Place a bid for a chance to purchase beautiful images by award winning photographers. Last year's event was extremely popular. Tickets are \$25 and can be purchased by contacting, Rita Monser, 321-2076, Doug Bammann, 294-2585 (Sandia), or Mark Rotter, 422-8370 (LLNL).

UC Berkeley is sponsoring a nanotechnology forum from 8:30 a.m. to 4:30 a.m. on May 1. The theme of this year's nanotechnology forum is **"The Future of Nano, Your Future in Nano."** The forum will be at the Andersen Auditorium of the Haas School of Business (UC Berkeley). Seats are limited. You may register online at <http://nanoclub.berkeley.edu>. For further information, contact Ryan Layton, pres2036@newton.berkeley.edu.

Lab institutes new badge policy for retirees

The Safeguards and Security Department has announced plans to modify site access rules for LLNL retirees who are not approved for access as participating guests, contractor employees, or other official categories for which they would be issued a Department of Energy standard badge.

This action is based on a request from the LLNL Director's Office to review current site access policies for LLNL retirees and make changes to commensurate with current security policy.

The new retiree site access policy is scheduled to go into effect May 1.

Rick Certo, division leader for Information and Personnel Security, stated that the new rules will apply to LLNL retirees who visit the Laboratory on a regular or periodic basis for purposes other than those characterized as official business. He stated that the need for a change became apparent when a recent review of LLNL's access procedures revealed weaknesses and discrepancies in the way retiree access is controlled.

Current site access policy allows LLNL retirees to possess a gray-striped LLNL badge that permits them access into unclassified areas of the Laboratory. The badge must be renewed annually after the retiree's status is confirmed through Human Resources. Those who possess a retiree badge basically have the same access to unclassified areas as current Laboratory employees.

The new site access policy will still allow access to unclassified areas of the Laboratory, but will require that a check of law-enforcement records be conducted, and that employee sponsorship be acquired for retirees who desire access to the site for more than one day at a time.

The new policy establishes three levels of access for LLNL retirees: (a) a self-requested, self-expiring badge that is valid for a single week day; (b) a 30-day badge that requires a host, or sponsor initiated badge request, and initiation of a law enforcement agencies check; and (c) an East Avenue Corridor (EAC-ONLY) credential that permits access and vouching privileges to facilities located within the EAC. The following is a breakdown of the levels and the criteria for each:

Self-Expiring One-Day Access Badge

- May be self-requested at the Westgate Badge Office by an LLNL retiree.
- Badge Office supervisor issues it upon verification of retiree status.

Allows access to Property Protection Areas (PPAs), Common Use Facilities (CUFs) on site, and the East Avenue Corridor (EAC). No vouching permitted.

- Allows site access between the hours of 6 a.m. to 6 p.m. on normal workdays.
- No access on weekends or holidays.
- No access through CAIN electronic portals or TESA-locked doors.

30-Day Access Badge

• Host/sponsor must submit badge request and justification to the Badge Office. The justification would reflect the programmatic purpose for the retiree having long-term access. The 30-day badge request would require the signature of the sponsoring organization's associate director or designee.

• LLNL retiree is required to complete Part A of Site Access Security Questionnaire (SASQ) to facilitate law enforcement records check.

• Badge Office supervisor issues badge upon verification of retiree status, completed SASQ, and completed badge request from host/sponsor.

• Allows access to PPAs, CUFs, EAC, and CAIN and TESA if required.

• Site access in PPA is unlimited for up to 30 consecutive calendar days.

EAC-ONLY Credential

• LLNL retiree may self-request EAC-ONLY credential through Badge Office.

• Badge Office supervisor issues credential upon verification of retiree status.

• Allows access and vouching privileges to EAC only.

• Access hours to EAC-ONLY are unlimited.

• Credential is valid for one year from the time of issuance.

LLNL retirees who now possess a retiree badge will be contacted and requested to turn it in to the Badge Office, since it will not be accepted for access after the implementation date of the new policy.

Further details about the new retiree site access policy, including a list of frequently asked questions (FAQ) may be found on the Safeguards and Security Organization's Badge Office FAQ Web page: <http://www-r.llnl.gov/securityprogram/badges/faq.html>.

Questions about the new policy should be directed to Edwin Tippens, 3-7177, or tippens1@llnl.gov.

Pat Clelland to retire from the Lab after 20 years of service

After 20 years of service, Pat Clelland is retiring from LLNL. Colleagues and friends will celebrate with a luncheon from 11:30 a.m. to 1:30 p.m. on Wednesday, April 20, at the Garre Winery tent. Cost is \$20 per person. Respond by April 15 with a check payable to Kathy Howard, L-727, 2-0814,

or Kathleen Batteate-Jordan, L-727, 2-082. Donations for a gift are welcome.

Want to say a few words? Sign-up when you RSVP. For directions go to: <http://www.garrewinery.com/directions.html>.

IN MEMORIAM

Jack Smith

Jack Smith of Mill Valley, a noted newsman, son of famed newscaster Howard K. Smith and Laboratory consultant for employee media training, died Feb. 7 from pancreatic cancer at Marin General Hospital. He was 58.

Smith, 58, had worked 26 years with ABC News, including a stint as White House Correspondent. A frequent visitor to Livermore several times a year, Smith would consult for the Lab's Public Affairs Office — counseling and coaching employees who must interact with the news media as part of their jobs.

He is survived by his wife, Pamela Smith of Mill Valley; his mother, Benedicte Smith of Marco Island, Fla.; a sister Catherine Smith of Los Angeles; and a son, Alexander Smith of Mill Valley.

Newsline

Newsline is published weekly by the Internal Communications Department, Public Affairs Office, Lawrence Livermore National Laboratory (LLNL), for Laboratory employees and retirees.

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NEWS OF NOTE



Mark Martinez of DNT recognized for achievements

The Lab’s Mark Martinez has been selected and is featured as The Hispanic Engineer National Achievement Awards Conference’s (HENAAC) “Professional of the Week” on their Website www.henaac.org.

Martinez recently became deputy program leader for DNTs Nevada Experiments and Operations Program and has served as test director for JASPER. That’s the Joint Actinide Shock Physics Experimental Research program, a two-stage light-gas gun that induces high-pressure and -temperature shocks into actinides to study material properties under extreme conditions.

He was responsible for the building and start-up of the JASPER nuclear facility. This included meeting all government regulations and policies, managing the program for high-pressure plutonium experiments and coordinating multi-disciplinary teams scientists and engineers from the Lab

and other agencies.

JASPER can fire projectiles at up to 8 kilometers per second, or nearly 18,000 mph, and it can achieve pressures of six mega bars or six million times the Earth’s atmospheric pressure. A series of 20 qualification shots were conducted before using the gun with nuclear materials. Since then Martinez has completed more than six experiments that identified and resolved significant engineering and scientific issues, as part of



Mark Martinez

the Stockpile Stewardship Program.

Martinez earned both bachelor’s and master’s degrees in mechanical engineering from Brigham Young University in Utah. He joined the Lab in 1994.

Concerned about the educational system in his hometown of Modesto, Martinez has brought about change through membership on the local school board, the school site council and various public committees.

Martinez actively volunteers as a leader in his church congregation and youth programs. He is a certified high school varsity football official and a member of the planning council for the Boy Scouts of America.

Updated UC whistleblower protection policy now up on the Web

The updated University of California Whistleblower and Whistleblower Protection policies are now available on the Web. The Lab has been working closely with UC to implement the updated policies and procedures, which have been tailored to fit the Lab’s organization and policy structures.

The Laboratory has had a policy on reporting suspected improper governmental activities for many years. Current policy is located at Section D.IX of the Laboratory’s Personnel Policies and Procedures Manual (PPPM). UC recently updated its whistleblower-related policies, which now provide greater detail on employee, supervisor/manager, and UC location (the Lab is one) rights and responsibilities. The Lab’s Procedure to Implement the UC Whistleblower Policy provides basic information Lab employees, supervisors/managers, and subjects of whistleblower investigations need to know about California law and UC policy. The procedure also details the particular mechanisms Lab employees can use to report suspected improper governmental activities and refers/hyperlinks employees to UC policy if more details are desired.

“Our Laboratory’s missions demand performance

of our work with excellence, integrity and proper stewardship of the resources that the government and public have entrusted to us,” explained Director Michael Anastasio, in a memo to all employees. The memo is posted on the front page of the whistleblower Website.

“The systems and procedures we have in place to assure appropriate stewardship work well, but they are not 100 percent effective against improper activity, whether deliberate or unintentional. Our employees who perform the work are in the best position to observe if there are questionable activities. Therefore it is vital that we have an environment in which employees and others with concerns about possible improprieties can come forward with confidence that their concerns will receive proper attention, and that they can do this without fear of retaliation.”

To ensure such an environment, Anastasio has appointed the deputy director of Operations as the Lab official with primary responsibility for implementation of the UC Whistleblower and Whistleblower Protection policies. Employees may view the new policies and procedures at: <http://www-r.llnl.gov/whistleblower/>

The Website includes information on reporting suspected improper activities. Improper activities include: bribery, theft or misuse of LLNL/UC/DOE property, fraud, corruption, or willful omission to perform duty. Additionally, the material covers each employee’s or supervisor’s responsibility to report when he/she believes that the alleged act maybe considered an improper governmental action, who to notify when such reports are made, and what protections are offered to whistleblowers under the California Whistleblower Protection Act . Links to UC whistleblower-related policies and UC, state and DOE Office of Inspector General hotlines are also included.

The University has asked that all supervisors and managers receive training regarding these policies. Web-based training has been developed to ensure managers and supervisors understand the policy and procedures, their role and resources available to them. Individuals who require training will be identified through L-TRAIN. The training must be completed by Sept. 1. For more information, contact Kathryn Craft Rogers at 2-9387.

EARTHQUAKES

Continued from page 1

Archuleta, professor of seismology at UCSB, “is that we have very little data for very large earthquakes where the site is close to the causative fault. UCSB, UCR, and UCSD all have major faults that are very close to the campus.”

“A single estimate of ground motion for a site is not appropriate,” Heuze said. “Even if you have a known fault and restrict your calculations to a known magnitude, this fault could provide that magnitude in many different fashions. Thus the severity of the ground shock where you stand could vary widely.”

To try to overcome this problem, the researchers placed several seismic monitoring stations at each campus in boreholes up to 100 meters (330 feet) deep — three times the depth of typical geophysical studies — and collected data on small earthquakes from local faults as well as regional seismic events. They took and tested soil samples at various depths and simulated hundreds of possible earthquake scenarios based on such variables as where a rupture might occur on the fault, the path it might travel, and how fast it might move.

“We know that under very strong shaking the soil may not behave in a linear fashion,” Archuleta said, “so we used nonlinear soil dynamics computer models to calculate the surface ground motions created by fault ruptures.”

UC now accepting pre-proposals

The University of California is accepting pre-proposals until April 30 for the next round of Campus-Laboratory Collaborations (CLC) and Campus-Laboratory Exchange (CLE) programs. The CLC program funds three-year collaborations, providing seed money for long-term collaborative research projects. The CLE program pays for one-year scientific collaborations involving faculty, laboratory staff, students and postdocs at UC campuses and one or both of the laboratories. Links to Requests for Pre-Proposals (RFPs) for the CLC and CLE programs can be found at <http://labs.ucop.edu/internet/research/index.html>.

Heuze and Archuleta praised the UC Office of the President, the participating campuses, and LLNL’s University Relations Program for funding the study, one of the first projects sponsored by UC’s Campus-Laboratory Collaborations Program. The collaborations are funded by a portion of the compensation UC receives from the U.S. Department of Energy for managing Livermore and Los Alamos national labs. Other UC campuses that helped in the research were Berkeley, Davis, Los Angeles, and Santa Cruz. San Diego State University also participated.

The study benefited greatly from the variety of disciplines and expertise that were brought to bear through the multicampus-laboratory collaboration, Heuze said. “A single campus or Laboratory could not provide all

the required expertise,” he said.

Archuleta said that while the study’s results still need to be validated by additional research, the University of California is already re-examining the earthquake hazard assumptions it has been using in light of the site-specific findings.

“The university has not backed away from these results,” he said. “They’re aware of it and thinking about how they’re going to use it. This provides the structural engineers with additional information that’s at least as reliable as what they now depend on, if not more so.”

Michael Bocchicchio, UC’s assistant vice president for facilities administration, agreed that the site-specific studies provide geotechnicians with a “broader set of data” to use in analyzing construction projects.

“This whole (seismic analysis) area is a big black hole,” Bocchicchio said. “It’s the weak link scientifically in the building design process. In the end, though, buildings are more sensitive to good detailing and good construction for seismic performance, as opposed to the absolute numbers you use for (motion) acceleration.”

“Given the existing building stock at the university’s campuses and the new construction that will continue,” Archuleta said, “it’s important to be very site-specific. If you’re only using the current state of the practice, you could be missing critical information.”



NEWS YOU CAN USE

BRIEFLY

Hydrogen economy and fuel cells
The Northern California chapter of the American Institute of Chemical Engineers (AIChE) will hold its 42nd annual symposium and trade show at H's Lordships in Berkeley Tuesday, April 20. The theme for this year's symposium is the "Hydrogen Economy and Fuel Cells." Professor Daniel Sperling of UC Davis will deliver the opening address, "The Hydrogen Economy: A Vision for the 21st Century" to kick off the meeting. The featured keynote speaker is Bob Therkelsen, executive director of the California Energy Commission. Attendees will gain an understanding of the technical and business issues faced by this emerging industry. Speakers represent industry, academia, and government. This year's symposium is co-chaired by Ravi Upadhye and Diane Spencer, both from the Laboratory. Look for additional information in Friday's *Newsline*.

For more information, check the Web at: <http://www.aiche-norcal.org/symposium.html> or contact Ravi Upadhye, 3-1299, or upadhye1@llnl.gov.

Brother of Unabomber to speak at Lab
David Kaczynski, brother of Unabomber Theodore Kaczynski, will speak in the Bldg. 123 auditorium Tuesday, April 13, from 10 to 11 a.m. His topic will be "Doing the Right Thing — When It's the Hardest Thing To Do." The Laboratory's Security Awareness for Employees (SAFE) Program is hosting the presentation. The talk will be unclassified. All LLNL employees and contractors and DOE personnel are invited to attend. The program will be cablecast live on LabTV, Channel 2. It will not



David Kaczynski

be rebroadcast and no videotapes will be available.

Walk on the left side of Lupin Way
The Lab's Traffic Safety Committee reminds Lab fitness walkers to walk safely, and in compliance with laws that govern pedestrian safety, especially those who walk at lunchtime on Lupin Way. Committee Chair Dennis Barrett notes several near-misses between pedestrians and vehicles at that location.
"Employees must walk single-file along the left edge of the roadway, in compliance with the California Vehicle Code. Walkers should beware of the blind hilltop on Lupin Way; otherwise they may find themselves in the path of an oncoming vehicle that cannot be seen until the last second," Barrett cautioned.

Technical Meeting Calendar

Friday 9
CHEMISTRY & MATERIALS SCIENCE, FRONTIERS IN CHEMISTRY & MATERIALS SCIENCE
"Mechanical Behavior of Nanocrystalline Metals," by Julia Weertman, professor emerita, Northwestern University, Materials Science and Engineering. 3:30 p.m., Bldg. 235, Gold Room (1090). For information on Weertman and an abstract of her talk, see Website: http://www-cms.llnl.gov/cms_frontiers_ext/index.html. Contact: Mike Fluss, 3-6665, fluss1@llnl.gov, or Kristine Ramirez, 3-4681, ramirez24@llnl.gov.

H DIVISION SEMINAR
"A Finite Temperature Quasicontinuum," by Laurent Dupuy, California Institute of Technology. 2 p.m., Bldg. 219, room 163 (Controlled area). Contact: Robert Rudd, 2-4292, or Darlene Klein, 4-2868.

Tuesday 13
PHYSICS & ADVANCED TECHNOLOGIES DIRECTORATE-WIDE SEMINAR
"An Overview of LLNL's Experiment on the 500 J RAL Petawatt Laser," by Pravesh K. Patel. 2 p.m., Trailer 2128, room 1000 (CUF). Contact: Alan J. Wootton, 2-6533.

LC USERS MEETING
As a part of the monthly LC User meeting Neale Smith of the Information Management and Graphics Group in ICCD will present the Hopper tool. Smith will demonstrate the powerful new Hopper

program which runs on all LC platforms. This interactive tool allows users to graphically move, copy, find, delete, and otherwise operate on files. 9:30 a.m., Bldg. 111, Poseidon Room. Contact: Jean Shuler, 3-1909.

Wednesday 14
PHYSICS & ADVANCED TECHNOLOGIES/V-DIVISION
"Study of Non-resonantly Excited Relativistic Plasma Waves for Phase-locked Acceleration of Electrons," by interviewee Catalin V. Filip, UCLA. 10:30 a.m., Bldg. 319, room 205. Contact: Stefanie B. Landes, 2-3201.

Thursday 15
PHYSICS & ADVANCED TECHNOLOGIES/N DIVISION
"An Improved RF Cavity Search for Halo Axions," by Danny Yu, Massachusetts Institute of Technology. 1:30 p.m., Trailer 2128, room 1000, badge required. Contact: Leslie Rosenberg, 2-4681, or Pat Smith, 2-0920.

PHYSICS & ADVANCED TECHNOLOGIES /V-DIVISION SEMINAR
"The Characterization of Laser-Accelerated Proton Flows with the Help of Surface Corrugations and Applications," by Hartmut Ruhl, University of Nevada, Reno. 10:30 a.m., Bldg. 319, room 205. Contact: Stefanie B. Landes, 2-3201.

ICF/HEDES
"Plasma Channel Guided Laser Wake Field Particle Accelerators," by interviewee Cameron Geddes, UC Berkeley and Lawrence Berkeley National Laboratory.

10:30 a.m., Bldg. 219, conference room 163. Contact: Anika Rodda, 2-6377.

Friday 16
ELECTRONICS ENGINEERING TECHNOLOGIES DIVISION (EETD)
"Statistical Detection of Signals based on FMRI Data," by interviewee Martina Pavlicova. 10 a.m., Bldg. 141, room 1104 Nyquist Room. Contact: Cathy Kenton, 4-3875.

INSTITUTE FOR GEOPHYSICS & PLANETARY PHYSICS
"The Mysteries of the Eagle Nebula," by Dmitri Ryutov, LLNL. Noon, Bldg. 319, room 205. Contact: Wil van Breugel, 2-7195, or Sharon Taberna, 3-6290.

Thursday 22
RADIATION DETECTION CENTER
"AEA Nuclear Material Safeguards," by Young Ham, LLNL. 11 a.m., Bldg. 151, room 1209 (uncleared area). Contact: Ron Wurtz, 3-8504, or Christie Shannon, 3-6683.

The deadline for the next Technical Meeting Calendar is noon, Wednesday.

Send your input to tmc-submit@llnl.gov. For information on electronic mail or the Technical Meeting Calendar list, see the auto registration service on the Web.

WHAT'S NEW IN THE SECURITY DEPARTMENT

SECURITY

Continued from page 1

ty. But his role is entirely new. Leary reports directly to Anastasio.

While continuing to ensure the Laboratory's security, Leary immediately began a series of corrective measures for security practices that had produced lost keys, lost Tessa cards and unlocked gates. He's melded years of keen business experience with his underpinnings in law enforcement and security. The combination produces a management style where best practices share an equal footing with protection strategies.

Supporting Leary in this new role is his assistant manager Sherry Graham, whom he says has been the key to success in many communications, organization and salary issues. Graham works closely with Leary, Russ Miller, and the Protective Force Division command staff. According to Leary, "She asks us all hard questions about why we do things, and she challenges our thinking about how we manage. Sherry keeps the organization focused on the importance of people, on how we set expectations and on how we are organized."

For example, Leary explained, she expended phenomenal efforts resolving issues associated with pay and benefits for departmental personnel serving in Iraq.

New faces

Russ Miller brought three decades of experience to the Security Department. He served 24 years with the U.S. Secret Service including supervision of Presidential Protection and White House Security. Miller began serving as

acting department head in June 2003, when Joe Krueger retired. Six months later, he was selected for the position permanently.

Recently, Miller's been working so intensely — often in tandem with Leary — that he's just now moved into his new office. His management style is hands-on and personal, as his pending "e-russ" Website demonstrates.

Michele Bergman stepped up from her role as leader of the Office of Program Planning on March 10, to become the deputy department head, a position she's filled in an acting capacity since last July. Bergman has a 16-

year career with the department and will be involved primarily with protection strategies and systems, internal and external reviews, UC contract performance measurements and Integrated Safeguards and Security Management (ISSM).

New name

Inclusion of the word "safeguards" in the department name dates back to an era when Materials Management was a part of the organization. Safeguards referred to the control and accountability of special nuclear materials. According to the timeline in the sidebar, Materials Management transferred from the Safeguards and Security to Mechanical Engineering in 1992.

But safeguards lingered in the title — until now.

Henceforth, according to Miller, his organization will be known, accurately and succinctly, as the Security Department.

New look

Logo - Plans began almost a year ago to develop a complimentary logo to accompany the name change. The new image will appear on facilities, Websites, training materials, correspondence and equipment as time and budget allows.

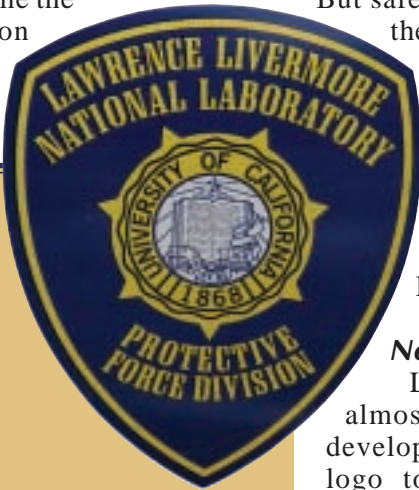
In a similar vein, the Protective Force Division recently began displaying a newly designed shield on the front doors of their patrol vehicles. This updated design parallels the look and graphics of other contemporary law-enforcement agencies.

New directions

Miller stressed that he wants accountability to be an important cultural element in his department, "Are we doing what we say we're doing?" He's also vitally interested in the training and operations of the Protective Force.

Regarding departmental operations, Miller says he wants to hire and train the right people, and verify that he's got "the right people in the right slots." He added that all this has to happen while "maintaining good business practices."

Bergman added that she foresees the department partnering more with Los Alamos in like areas and common practices. She advises all involved to stand by for more improvements and more changes.



Security Department timeline

- | | |
|------|---|
| 1990 | First department <i>Safeguards and Security News</i> published. |
| 1991 | Contest developed a new logo. |
| 1992 | Materials Management Division transferred to Mechanical Engineering Department. |
| 1993 | New presidential administration changed US nuclear weapons program and DOE's role in it. Budget cuts began for security services. <ul style="list-style-type: none">• Hiroshima Day protest demonstration proved a bust: four protesters, two arrests.• Ground broken for new Security Administration Building. |
| 1994 | Laboratory expanded private industry collaborations. Lab developed first DOE program on safeguarding proprietary information. <ul style="list-style-type: none">• New Security Administration Building, B-274, dedicated. |
| 1995 | Secretary O'Leary expanded self-assessments and continuous improvement. <ul style="list-style-type: none">• DOE and UC changed to performance-based management, including compliance with DOE orders and business practices.• 1995 Livermore became one of the first facilities to issue a new DOE Standard Badge providing access throughout the complex.• Secretary Hazel O'Leary announced S&SD as the DOE Quality Accomplishment Award recipient for "significant effort in operational performance, customer satisfaction, employee involvement, and cost efficiencies." |
| 1996 | Deemed unnecessary by DOE, the Special Emergency Response Team was eliminated during continued budget cuts. <ul style="list-style-type: none">• First internal Web page provided security information to employees. |
| 1997 | Westgate Badge Office remodeled. <ul style="list-style-type: none">• DOE changed protection strategies for special nuclear materials. The Special Response Team was reborn as the first Security Police Officer-3 academy graduated in August.• JCATS computerized conflict simulation code used to evaluate special nuclear materials protection strategies. |
| 1998 | TESA lock introduced to replace the "Z" key lock. |
| 1999 | Department received DOE "green" rating required to protect special nuclear materials, as well as classified and sensitive materials. |
| 2000 | Direct funding began for all DOE safeguards and security elements. <ul style="list-style-type: none">• National Nuclear Security Administration was established bringing with it changes to Lab security. |
| 2001 | New UC contract introduced Integrated Safeguards and Security Management. <ul style="list-style-type: none">• Post 9/11 changes: Lab installed barriers; increased protective force presence and patrols; began delivery vehicles searches with bomb-dogs, along with trucks and bus inspection when entering gates. Traffic and parking patterns changed. Controlled access on East Avenue began during heightened security condition. |
| 2003 | East Avenue enhancements strengthened Lab's security and began new security interactions between the Lab and Sandia. |

TERRY PATTERS CONTRIBUTED TO THIS TIMELINE.



CLASSIFIED ADS

See complete classified ad listings at
<https://www-ais.llnl.gov/newsline/ads/>

AUTOMOBILES

1999 - Olds Alero GTS. White/tan leather. FULLY LOADED. Very Clean 85k miles. \$9k obo or take over payments. 1.5yrs @ \$279mo Valley Springs 209-772-1730

1998 - BMW Z3 Roadster Conv, 1.9L, 5-spd, Sky Blue, Blk top, leather, immaculate, 24k miles, Great FUN car, \$15,500 obo 925-455-5209

1992 - Camero RS 25th Anniversary ,White, auto trans., excellent condition, 100K, T-Top, Dual Exhaust, Flow Masters, Power Windows & locks, \$3500. 925-443-9651

2001 - Volkswagen Jetta, Wolfsburg Edition, white, excellent condition, sunroof, 4-cyl. 1.8L turbo, 5-speed, all power, cruise, 39k mi, make offer. 209-545-1308

1995 - GMC Safari, SLT all options, Extended 8 Passenger, AWD,137K miles, Great Condition! REDUCED \$3900.00/ Best Offer 209-599-4644

1992 - Toyota Tercel DX, 4 Door, AM/FM Casset, 5 Speed, 150K Miles \$1,800.00 510-537-1657

2001 - Porsche Boxster; immaculate cond., 5 spd, red w/gray leather int., CD, sport package. Only 14,5K mi. Fun car. \$37,500. 925-846-3278

2001 - Mercedes Benz SLK 230 Sport AMG. Silver with black leather,5 speed auto,\$10,000 in options, only 15,000 mi. MINT! \$33,000 925-371-0318

1976 - Ford Mustang II - only 60k miles! A classic! V6, AT, PS, AM/FM/CD. Runs well. Good car for high-schooler - not too fast & lots of steel. \$950. 925-443-1074

2004 - VW, Beetle, GLS, convertible, a/t, a/c, all power, excellent condition, 3K miles, \$22,500/bo 209-839-0872

AUTOMOBILE ACCESSORIES

Zymol car care kit with full size wax, wash, detail, leather cleaner & conditioner in wood box. New. \$25 925-648-0671

RV Type tow bracket set. Light use ñ fits Saturn SL1 \$50/obo 209-599-3285

Cable type tire chains. New never used. Fits many tire sizes. Carry case include. \$25 925-455-8609

BICYCLES

Bianchi womans mountain bike. \$65/obo 925-447-4126

24 inch 15 speed Mountain Bike, Needs seat post. Otherwise almost new condition \$40. 925-443-4413

BOATS

12 foot aluminum boat, depth/fish finder, rod holders, trailer, 8 horse motor, new electric motor 40 pound thrust and 2 oars. \$1,400 209-823-9470

1995 Ranger Sport R72, motor guide, 12-24 trolling mtr., 2 Lawrance depth finders, Merc. 115, trailer with spare tire. \$6500 obo. 925-778-4655

ELECTRONIC EQUIPMENT

HP 1MP digital camera with 16MB and 4MB compact flash. Used infrequently, good beginning camera. \$45. 925-784-3731

Linksys 10/100 Switch with two cat5 cables. \$20/OBO. Also new Netgear 10/100 router switch kit with NAT firewall, never used. \$25/OBO. 925-275-8011

25 inch Television, excellent condition, \$50 925-443-4413

iMac, and color HP printer. Used for a very short time. \$300 925-373-1964

Kenwood 7 component stereo system in Kenwood cabinet and large speakers for sale. Used very little. Great condition. Has turntable. 209-814-8189

GIVEAWAY

EICO Oscilloscope, DC-Wide Band, Model 460, old tube type, good condition, FREE to good home. 925-837-4811

Wood siding - cottage lap style, Wood pallets, cut lumber for firewood, Muriatic acid

for pools. 925-443-4413

1975 Suzuki Water Buffalo. Lots of new parts. Looks nice. Needs a crankshaft seal. All electrics work. 925-447-5221

Small couch. Well used but no holes. 925-449-1464

BBQ Grill - natural and propane gas, cast iron basin and lid (with glass) on pedestal 925-449-3165

Macintosh LC-III with 12 inch color & 12 inch b/w monitors, keyboard, mouse, printer and modem. 925-846-5345

Twin mattress set with adjustable metal frame excellent condition - can deliver 510-517-6715

HOUSEHOLD

Framed Marie Pascal limited edition water-colors of Pleasanton Hotel (before remodel) and Pleasanton Mainstreet 19 by 15 inches. \$60 each 925-447-8613

Bunkbed - Oak, 3 drawers underneath, Converts to two twin beds, excellent condition, \$125 925-443-4413

Whirlpool refrigerator-freezer, frost-free, 1985 with icemaker. Works great! \$400 obo. 925-449-4396

Square Glass Table, rounded edges, w/4 chairs. Base & Legs Offwhite, w/Mauve & Teal floral pattern. 925-449-7371

Thomas wooden railway, 100 piece set w/ storage box--Sodor Rescue Team Set. NEW & unopened, not \$300, only \$175. 925-294-9022

Set matching Danish chairs:\$100 2 Recliners, spice color fabric: \$150.00 each Sofabed, queen-size, good mattress \$125.00 very good condition. 925-837-5175

Queen bed, large headboard, 2 nightstands, frame, box spring, water mattress, dark wood, \$150. 925-485-1988

Freezer - Full size upright (16+ cu ft?) \$50 925-449-3165

Refrigerator, like-new Maytag 21-cubic-foot side-by-side in almond--\$500. 925-461-5033

Oak rolltop computer desk. 52 inches across, 51 inches tall, 33 inches wide. Good condition. Asking \$250.00 obo. 925-443-8978

Select Comfort, Cal-king, dual chamber airbed 5000. Orig. \$2100. asking \$1700. Under 1 yr old. 209-830-1528

FREE dinning table, china cabinet and hutch with purchase of six matching chairs. Pine with medium-dark stain, excellent condition. \$650/offer 925-830-8640

Graco Duo-Glider stroller. Perfect for two children: front, back snack trays, rear seat fully reclines, accommodates carseat, large basket \$60. 925-456-6023

Single computer desk w/shelf underneath \$20. Home office desk -good cond. \$50. Compact refrigerator w/ seperate freezer 5 months old. \$100 obo. 209-833-5074

Older Bemina sewing machine in its own solid wood Hidayay cabinet. Sewing chair available. 290-814-8189

LOST & FOUND

Lost Ideal Volt Meter with black case and name Bobby T. Lost near Bldg. 490. If found please call 3-4036. 925-417-0180

MISCELLANEOUS

Motorized baby swing. 2 speeds, open top model \$25.00 925-606-1972

Wallpaper. 6 rolls. Dark red granite look, matching red leather look. Paper small room or use for crafts. Make offer. 925-899-9675

Beyonce's new Dangerously in Love CD w/Star Spangled Banner CD. \$8 for both. 925-648-0671

Garage Sale Saturday-April-10, 8AM-noon. Electronics parts+consumer goods, SCUBA, photography, household+clothing. 136 Coral Circle, San Ramon. 925-336-6108

SF Giants tickets. Many dates available. Behind 3rd base. \$58 for the pair. 209-552-0932

King-size water bed, wood frame and large headboard with cabinets and shelves, and 12 drawers and large storage underneath bed.

\$500 obo. 925-455-8225

Oak bunkbed set with 3 drawers under, includes 2 mattresses, \$100 209-839-0068

Oak rolling computer cart/desk, \$50. 24in whole house fan, new, no shutter, \$35. Allegria laminate flooring, oak, abt 30 sq ft and supplies, \$20. 925-294-9022

New hydraulic parts. 3-way valve, pump, motor. New 5 hp Kaw. engine. 1/2 hp electric motor. All 20 cents on dollar. 925-447-5221

Little Tykes Big Climber play structure with swing, slide, Excellent Condition, \$180.00. Fisher Price Merry-Go Round \$40.00. 925-456-5432

Dragonball Z CD, Frieza Super Saiyan Goku, uncut English version & original Japanese version on same CD, unused, in plastic wrapped original box \$15 925-292-0348

Great Giants View Box seats! Fifteen games available from April to September. Will sell at face vaule, \$24. 925-828-6210

Fiberglass Spa, 6ft Diameter in-ground spa with pump,filter and electronic start gas heater. \$600.00 925-443-1715

RV Cover fits up to 28ft.Minor hole,lots of life left.Asking only \$50.Paid \$325. 510-429-1530

Gazebo, like new, 12ftx9ft, sliding door, sliding windows, sky light, \$2000 obo. 209-852-2015

2HP Air Compress w/1 1/4 Brad Nailer Kit, Rigid 2.0 HP 6 gal wet/dry vac, Ryobi 14 inch metal cutoff mach w/cast iron base,still in boxes,best offer 925-447-0546

Garage Sale Saturday April 10 from 8:00 to 4:00. Little bit of everything, 1 day only. 4670 Kimberley Common, Livermore. 925-455-4241

MOTORCYCLES

1994 - Honda XR650R street or dirt. Tires for both. Baja designs seat and fenders, 3 gas tanks, Runs very strong. Asking \$2,900 209-234-2071

1989 - HONDA CR500 \$3000 runs great snorts up hills, KAW 1990 KDX 200 \$1750, Need to make room in garage. 209-601-2486

2001 - Polaris 500 HO ATV. Like new, less than 50 miles on vehicle. Color, Yellow. \$6100.00 OBO 925-960-1788

MUSIC INSTRUMENTS

1930s phonograph. Good condition. Lots of old records. \$300 925-447-4126

Schaefer & Sons Piano - Beautiful Glossy Cherry. 10 years old, but played lightly - Looks almost new! Moving. Must sell ASAP \$1,700 or Best Offer 925-277-1704

PETS & SUPPLIES

Styrofoam incubator w/ heating thermostat. Small tabletop one used to try and hatch gecko eggs. Used once. \$20. 925-275-8011

Horse Hay. Red Oat or Forage Mix, Clean, Certified for use in National Forests. Barn stored 7\$ Can deliver Locally, Livermore 925-449-5640

Horseback Riding: Lease my horse for \$25/day at great ranch in Livermore. Lessons available. Beginners to experienced riders welcome. 925-484-0697

Sacrafice 45gal aquarium w/fish and lots of accessories. Upgraded pump system. Call for more details. Moved, no room. 209-814-8189

RECREATION EQUIPMENT

Tent-Military surplus, waterproof vynal Command Tent. 18 ft octagonal shape. Good condition, in storage last 4 yrs, needs wash down. \$100.00 OBO 925-960-1788

Skis. Soloman Crossmax 185cm w/ pilot binding system. Barely used one season. Well under end-of-season sales at \$400 obo. 925-454-9253

Bike trailer/jog stroller. Molded hard plastic bottom. Sun shade cover. Holds two children. \$50.00 925-606-1972

Aerobic Rider exersizer bike. \$65/obo 925-447-4126

Porta-Court: Portable basketball hoop, pole and backboard. Excellent condition, \$50 925-443-4413

1994 Harley Dyna Low Rider 17K miles, detachable windshield, sissy bar & saddle bags, 3 seats, cam, carb, pipes, extras, excellent, \$11700 obo 925-634-4408

Inground pool slide, left hand curve, good condition. \$50.00 o.b.o. 925-426-8139

Snow skis, Rossignol, size 158 w/marker bindings, ladies Noridica boots size 6, poles. Used very little, ex condition. \$100. 925-455-8238

RIDESHARING

Express your commute, call 2-RIDE for more information or visit <http://www-r.llnl.gov/tsm>

Modesto - Available parking for LLNL car-pools & vapools at St. Dunstans Episcopal Church 3242 Carver Rd. About 3 miles from freeway. Contact 209-529-8243, ext. 0-0000

Salida Blvd (Denny's off Pelandale) - Immediate opening in Daves Luxury vanpool, captain seats, reading lights cellphone 8-4:45 ridership-based fares 209-404-6680, ext. 3-3194

Modesto/Ripon - 14 Passenger van has openings available for full-time riders. 99-120-205 route. 8:00-4:30 schedule, can possibly accomodate 4:45. 209-544-6411, ext. 2-2727

Ceres/Turlock - Seeking new riders for a 9/80 work week as well as a relief driver. Hours 7:30am to 4:45pm. 209-572-2073, ext. 2-0638

MANTECA - 7:30 to 4:00 work hours. Daily drive rotation. Meet at Manteca Marketplace Chevron. Yosemite & Union. 209-823-5593, ext. 3-8539

PATTERSON - Vanpool has seats available for M-F/7:30-4:00 shift. Pre-tax transportation and Guaranteed Ride Home programs available. Fares based on ridership. 209-892-2118, ext. 2-9502

Ripon - Looking for carpool out of Ripon. Woking hours 7:00 - 3:30. 209-599-4793, ext. 3-9587

Orinda - Lamorinda carpool seeks 4th rider/driver. Lab hours 8am-4:45pm. Carpool meets near St. Stephens and Hghwy 24. 925-253-0498, ext. 2-9823

San Jose - Carpool wanted. M-F, 8 hours/day at LLNL. Hours flexible. Prefer 6am-3pm work schedule 925-321-2061, ext. 3-3157

Stockton - Attention 9/80 workers. SMART, has a bus leaving from Stockton for 9/80 hours of 7:00 to 4:30 contact 209-951-8738, ext. 2-9183

Modesto - Working 4-10s and want to van-pool. Luxury van on the 6am to 4:30 shift runs Mon. through Fri. Seats available. 209-667-2365, ext. 2-8321

SERVICES

Experienced and reliable housecleaner. References available. Call 925-243-1622

SHARED HOUSING

Livermore, room for rent \$700 per month + \$700 deposit all utilities included, cable, housekeeper. Ready Apr 15 Call 510 719-1149 925-443-3234

Livermore - furnished room for rent. Clean/quiet. Pool. No pets/no smoking. \$550.00/month. Share utilities 1/3. Deposit. Mature Adult. 925-449-1128

Livermore - Rm 4 Rent in Livermore No pets, No smoking Walkin closet,pvt bath,2ndflr; 1st/last \$650/month+utl Credit check req D.J. (925)260-3640 925-449-0531

Livermore - Room for rent, clean/quiet. 3 mi. to LLNL. Garage parking w/d. No pets/smoking. \$550.00/mo+1/3 utils+Dep. Mature adult. 925-373-1648

TRUCKS & TRAILERS

1998 - Jeep Cherokee Classic. Auto,air,loaded. runs and looks excellent.Must see to appreciate. \$10,000 best offer. 209-823-3848

1999 - suburban, auto 4x4, LT, leather, power seats, tow package, 68K miles, newer engine, \$16,995 OBO. 209-835-9240

1992 - Chevy S10 Blazer, 130K, Runs great, but needs transmission. \$1600. Call after 4pm. 209-835-6598

1971 - F250, 360 V8 with new edlebrock carb and manifold. Camper Special. Many features. \$4800 obo price is right! 209-772-1730

Truck ramps, heavy duty, metal, folding, only used a few times. qty 2. Both for \$60 925-513-1786

1996 - Chevy Tahoe 2 Door 4X4! Green with beige cloth interior. PW/PL, am/fm in dash CD W/6 cd changer, AC, 4WD, and tow package. 117K miles. \$7000 o.b.o. 925-785-7607

2003 - Dodge Ram 1500 Truck, Quad Cab, Silver/Charcoal, A/C, Automatic, Power Windows/Doors/Mirror Adjustment, Great Condition/Like New, \$27k 925-456-0757

1949 - Ford F-6 C.O.E. Cab and chassis mostly in parts but complete. Too many other projects! Must Go, Any Offer! 925-449-5640

1991 - Mitsubishi Montero-118K miles-4X4-new tires-\$2495.00 925-240-6311

1994 - Fleetwood Jamboree 23 foot class C motorhome with only 20,000 original miles. On Ford F350 chassis with 460 cu in motor. Excellent condition \$19,000. 925-443-6887

1970 - Chevy, C-10, Longbed with Camper Shell, plus Extras. \$8,000/OBO 209-824-2618

2004 - New GMC Sierra Truck (like a Silverado) - Reg. Cab, SB, AC, ABS, hitch, v6, 5 speed,\$12,800 510-252-9596

VACATION RENTALS

Soda Springs/Donner Summit, Classic A frame, 2BR/1BA+Loft, 5 min to Sugar Bowl conv to biking, hiking, everything \$200 wknd,\$500/week 209-836-3481

Palm Springs - -Hotel resort. Charming apartment with 1 or 2 bedrooms/sitting room/kitchen, swimpool, year-round nice weather. Near Joshua Tree Natl Park and more. 925-606-5660

Maui, HI - Kahana Reef oceanfront 1BR/1BA condominium. Beautiful two-island view, oceanside pool, and BBQs. LLNL rates for year-round reservations. 925-449-0761

SOUTH LAKE TAHOE - 3 Bedroom 2 Bath Chalet, nicely furnished, all amenities,Off-Season Rates Now, Reserve Now for Summer Vacation! 209-599-4644

Soda Springs/Donner Summit, Classic A frame 2BR/1BA+Loft, sleeps 8, Walk to Royal Gorge 5 min to Sugar Bowl \$250 wknd,\$550/week call for availability 209-836-3481

WANTED

WANTED: One or two bedroom home, duplex, or apt. to rent or lease for retired couple. Will care for yard and give it TLC. 925-447-4126

BLOCK YARD SALE in TRACY - Saturday April 17 from 7:30AM to 3:00PM. Several neighbors getting together on Ridgeview Drive. 800-555-1212

Bass guitar, amp and case for teenage son desiring to be a legend, Either individual items or all would be fine. 925-449-1318

BRICKS. Will the man who responded to my ad for buying used clay bricks please call me. I lost your telephone number. Thanks, 925-606-0260

Moving boxes of various sizes. Contact Beverlee. 209-835-8343

Wanted approx. 20 ft older motor home fully contained 925-240-6311

We need MOVING BOXES for upcoming move to Livermore. We will pick up. Thank you. 925-240-0678

Washer and Dryer donation for Mens Recovery Home in Brentwood. You supply, we pick up. Donation Receipt. 925-382-4478

Please note:

Services and merchandise listed in *Newsline* are not guaranteed. It is up to the buyer to scrutinize services purchased.

Due to space limitations, *Newsline* may withhold ads that have already run. They will still appear on the Web.

OZONE

Continued from page 1

fied ozone transport down from the stratosphere during NASA’s 2002 Crystal-Face mission over Florida. The research is presented in the April 9 edition of the journal *Science*. The atmosphere has several levels: the lowest is the turbulently mixed troposphere, which extends from the Earth’s surface up to approximately 10 kilometers, and the second level is the more stable stratosphere, which extends from 10 to 50 kilometers above the surface and contains 90 percent of the world’s ozone. The tropopause is the transition zone between the two and is approximately the altitude of

commercial aircraft flight. A team of scientists within LLNL’s Atmospheric Science Division created a computer model that can simulate how both ozone and hydrogen chloride (HCl) in the stratosphere travel downward across the tropopause and into the upper troposphere. Atherton and Bergmann used this model to simulate specific atmospheric events. These results, when compared to measurements, validated a novel technique that uses HCl measurements to better understand the contribution of the stratosphere to upper tropospheric ozone concentrations. Upper tropospheric ozone plays an important role in global warming and climate change. Ozone is a highly reactive and toxic gas. Although it blocks incoming harmful radiation, it also acts as a

greenhouse gas, respiratory irritant, and can damage materials and crops. “This research shows that there are times when a significant amount of the ozone found in the upper troposphere was due to stratosphere-to-troposphere transport events,” Atherton said. “Continued use of this measurement method will lead to a better understanding of how much of this material is transported to the upper troposphere, where it affects climate and the chemical balance of the atmosphere.” Until now, no experimental technique could reliably quantify stratospheric ozone in the upper troposphere.

PATHOMICS

Continued from page 1

that occur when a body has been exposed to a pathogen. “We don’t have any technology right now to detect the presence of anthrax before you’re essentially too sick to help,” said project co-leader Fred Milanovich, who founded the Lab’s Chemical and Biological National Security Program (CBNP) in 1996. Pathomics was conceived in late 2001 as a strategic vision for the Laboratory’s CBNP by Milanovich, current CBNP leader Pat Fitch and Ken Turteltaub, head of Biology’s Biodefense Division. “The premise of pathomics is that before the onset of illness, there is a molecular indication of disease in human blood,” Milanovich explained. Faster disease detection, followed by more rapid treatment, could help save the lives of people exposed to bioterrorist agents such as anthrax and plague.

Now a year old, the Livermore pathomics project has been funded as a strategic initiative by the Laboratory Directed Research and Development Program. In their initial studies, the researchers are evaluating the baseline status of people’s blood when they are healthy. The 15-person research team is checking the blood of humans and animals to identify the thousands of components, such as nucleic acids and proteins, that constitute normal blood.

“We’re examining the changes in these components, from increased or reduced concentrations to the appearance of new ones,” said Turteltaub, who is also a project co-leader. Bill Colston, associate leader for Physics’ Medical Physics and Biophysics Division, is the team’s third project co-leader. “It’s in these changes, brought on by the presence of the pathogen, that the team believes they can find an early diagnostic tool to detect the presence of disease before you even have symptoms,” Turteltaub explained. As a part of the three-year project, the Livermore team hopes to validate their approach by addressing three main questions:

- Can molecular signatures be used to differentiate a sick person from a healthy person before they develop symptoms?
- Is it possible to distinguish a bacterial infection from a viral infection?
- Can differences be identified between bioterrorist pathogens and naturally occurring diseases, such as flu or SARS?

Collaboration keys disease detection effort

Lab scientists have joined forces with researchers from two southwestern universities to study early disease detection. The Biosignatures Consortium is a collaboration of LLNL, the University of New Mexico (UNM) Health Sciences Center and the Center for Biomedical Inventions (CBI) at The University of Texas Southwestern Medical School at Dallas. The consortium was established earlier this year under a memorandum of understanding signed by the two universities and LLNL. “The aim of the Biosignatures Consortium is to provide the earliest possible diagnosis of infection, whether it’s an emerging disease, a known disease or a bioterrorism threat,” said project co-leader Fred Milanovich. “Early disease detection is a national security issue because of bioterrorism, but it’s also a public health issue because of emerging infectious diseases,” Milanovich said. “Exactly the same techniques that would be used to look for bioterrorist pathogens can also be used to detect emerging diseases or in standard clinical practices.” Leading the Biosignatures Consortium efforts at the two universities are Stephen Albert Johnston, director of CBI at UT Southwestern, and Rick Lyons of the UNM Health Sciences Center in Albuquerque. “The three of us recognized that it would be mutually beneficial to synergistically use everyone’s capabilities for the common goal of early disease detection,” Milanovich said. CBI at UT Southwestern has a noted capability in developing ligands, or binding agents, that allow hundreds of proteins or protein fragments to be rapidly synthesized. This is a critical technology toward the goal of an instrument that can read hun-

dreds of components in the blood. “We want to make disease detection pre-symptomatic,” Johnston said. “We hope to find proteins or protein fragments that produce unique biosignatures indicative of specific diseases, including biothreats.” If biosignatures can be found for specific diseases, they could be used in two ways, according to Lyons, associate professor of internal medicine at the UNM Health Sciences Center. “The biosignatures could be used diagnostically to see if a person has been infected, or prognostically to determine whether a patient is responding well to therapy or needs more aggressive treatment,” Lyons said. The UNM Health Sciences Center has a well-regarded capability in infectious diseases, and Lyons directs projects on developing models for infectious agents, including those of several biothreat agents. Two companies — Source Precision Corp. of Boulder, Colo. and Rules Based Medicine of Austin, Texas — are providing analytical capabilities to the consortium. The Laboratory’s Industrial Partnerships and Commercialization (IPAC) office has been involved in the business development aspects of the project. A technology consulting firm, Perspectives, has been hired by IPAC to prepare a comparative market analysis. An External Advisory Committee has been established to assist the Biosignatures Consortium. The committee is chaired by Dr. David Galas, who led the Department of Energy’s Human Genome Project in the early 1990’s and is now the chancellor and chief scientific officer of the Keck Graduate Institute in Claremont, Calif.

from the discovery of a disease signature to its use in the country’s national biodefense architecture.” LLNL and Los Alamos used a similar end-to-end vision in the development of the Biological Aerosol Sentry and Information System (BASIS), which was deployed as part of the overall security strategy for the 2002 Winter Olympics. The national BioWatch detection system, which is deployed in about 30 cities, has built upon the BASIS technologies and architecture. So far, Lab researchers have identified four analytical techniques for pathomics that together should be able to provide nearly comprehensive measurements of the protein and RNA content of blood samples. These techniques are mass spectrometry, gene arrays, two-dimensional gel electrophoresis and reverse transcriptase PCR (polymerase chain reaction). In light of the growing interest in pathomics, Lab researchers are organizing a two-day international Pathomics Conference that will be held in late 2004 or early 2005 in Redwood City. Lab biomedical scientist Evan Skowronski is the conference’s committee chairman. Researchers and support for the project come from seven directorates — NAI, the Biology and Biotechnology Research Program, Chemistry and Materials Science, Computations, Physics and Advanced Technologies, Engineering, and Energy and Environment.

The Lab’s pathomics research could provide a major breakthrough for the national security challenge of biodetection in Milanovich’s view. “Currently, we are only prepared for what we know, which leaves us in a vulnerable position, since there is a lot out there we do not know about. We need to be ready for the unknown. “The holy grail – and greatest hope – of this project is that we would gain enough knowledge of disease and its molecular response in the human body that we would be able to identify the presence of a disease we’ve never seen and even recommend a treatment for it,” Milanovich said. If successful, pathomics could help fight the Achilles heels of biosecurity — engineered agents, newly evolved diseases, and even a lab experiment gone awry.

One of the project’s major challenges, according to Milanovich, is bioinformatics — the acquisition and analysis of large amounts of biological data from diverse sources. “We anticipate making measurements or gathering biological statistics that will generate more than 80 million different pieces of data,” Milanovich noted. Fortunately, Livermore has a strong competency in bioinformatics because of the work done during the 1990’s by Lab scientists who supported the Human Genome Project. Another Lab capability is being created for the pathomics project: the development by the Chemistry and Materials Science directorate of high-throughput mass spectrometry to identify protein components of blood. “We are focusing on developing the national security aspects of this technology with an end-to-end vision,” Turteltaub said. “We want to be able to move

Committees named to search for associate directors

Director Michael Anastasio has appointed a committee to search for a new associate director for Safety & Environmental Protection (SEP). Dennis Fisher, the current associate director is retiring in June after more than 33 years at the Lab, 17 of which have been in an associate director capacity. In addition, Anastasio has established a second search committee for filling the position of associate director of Energy and Environment (E&E), the seat to be vacated by current associate director C.K. Chou. Chou recently announced his retirement at the end of June, following a 26-year career at the Lab.

During that career, Chou was a pioneer in risk assessment for nuclear material and power plants. He served at the Department of Energy headquarters for three years dealing with nuclear issues across multiple DOE offices. In 2001, Chou took on leadership of the Energy and Environment Directorate to focus scientists toward innovative thinking and solutions to worldwide issues. He has successfully developed and implemented Labwide initiatives in areas such as water, atmospheric dispersion, hydrogen, and carbon separation and sequestration.

The E&E associate director search committee is

co-chaired by Hal Graboske and Wayne Shotts. Members include: Roger Aines, Cindy Atkins-Duffin, Doug Rotman and John Ziagos from E&E; Mike Thelen from Biology & Biotechnology Research Programs (BBRP); Ravi Upadhye from Chemistry & Materials Science (CMS); Peg Folta from Computation, Rokaya Al-Ayat from the Director’s Office, Eileen Vergino from Nonproliferation, Arms Control and International Security (NAI); John Bradley from Physics & Advanced Technologies; Albert Lamarre from Safety & Environmental Programs, and Rick Twogood from Engineering.

The associate director for E&E will develop a strong strategic vision for programs and disciplines at the intersection of energy, environment, and national security interests. The associate director will lead programs important to directorate and LLNL mission areas; develop strong disciplinary science to support those programs; and manage a workforce of 400 employees and budget of \$120 million.

The search committee for SEP is co-chaired by Glenn Mara, deputy director for Operations and George Miller, associate director of the National Ignition Facility. Members of the committee include: Norm

Burkhard from E&E; Dave Conrad from Defense & Nuclear Technologies; Tom Crites from NAI; Vaughn Draggoo from NIF; Patsy Gilbert from BBRP; Stephanie Goodwin and Howard Wong from SEP; Ed Helkenn from Laboratory Services; Jim LeMay from CMS; Monika Witte from Engineering, and Buck Koonce of the UC Office of the President.

The SEP associate director leads the Laboratory’s safety, environmental protection and health services functions, including nuclear safety. Key goals of the directorate are to foster a safe Laboratory working environment, with appropriate safety training and education for its employees; protect the environment via environmental monitoring, compliance, restoration and waste management activities; and protect the health of Laboratory employees. The associate director also maintains critical strategic relationships with the University of California, key external organizations and regulatory agencies.

The positions are posted as “Featured Job Postings” on the LLNL jobs page (jobs.llnl.gov) and are open to both internal and external candidates.

Contact any of the committee members with your comments or suggestions for either position.

ACADEMIES

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ermore and Los Alamos national labs. UC’s contracts to manage the weapons labs expire in 2005.

In his opening presentation, Director Michael Anastasio chose to “focus on those things that make us different from other research institutions and what’s special about us.”

The Laboratory is defined in large part by its national security missions that “focus on the best interests of the country,” he said, outlining the breadth of the Lab’s core missions in national security.

A defining characteristic of the Laboratory is that “we represent our best technical judgment with integrity — even in the face of competing interests,” he said. “We must be independent of the policy debate going on at the time.”

Noting the close working relationship between Livermore and Los Alamos, Anastasio said, “The two labs provide independent judgments on nuclear weapons.”

The technological options the Lab is able to provide “can enable fundamental change in U.S. national security policy,” he said, citing Lab work during the Clinton Administration’s development of policy positions on the Comprehensive Test Ban Treaty as an example.

“Currently, our budget is dominated by national security programs,” Anastasio said. “Our core nuclear mission and role as a second nuclear weapons lab shaped us.”

LLNL has also defined itself by taking on a different set of challenges, Anastasio said. LLNL created many of the modern advances in nuclear weapons, such as adapting nuclear warheads for the submarine-launched Polaris missile and multiple warheads for a single missile (MIRV).

He said the Lab was also instrumental in “developing modern weapon production approaches.”

A history of coming up with innovative, integrated solutions allowed the Lab to take on the challenges of science-based stockpile stewardship, the NNSA program for ensuring the safety, security, and reliability of the nation’s nuclear deterrent in the context of a nuclear testing moratorium.

Anastasio said these have demanded the development of new capabilities such as the National Ignition Facility and computer simulations of unprecedented fidelity under the Advanced Simulation and Computing program (ASCI).

In describing the attributes a contractor managing the Lab would need, he stressed the importance of maintaining an “overarching commitment to the national interest.” Contractor attributes Anastasio described included:

- Demand and practice of intellectual integrity and scientific objectivity.
- Fostering and promoting innovation in science and technology balanced with disciplined execution.

- Promoting a culture that can commit to ambitious program goals that anticipate breakthroughs for success.
 - Fostering program integration and technical competition with Los Alamos.
 - Integration of business and operations practices with science and technology for simultaneous excellence.
- Anastasio worried that under separate contractors Livermore and Los Alamos might “compete for market share” in a way that would be a “detriment to the national interest.”

Community lauds Lab education programs

The committee heard comments from various members of the community and LLNL employees who had signed up in advance to speak at the afternoon public session. Many community leaders emphasized the important role the Lab plays in supporting science education.

Former Assemblywoman Lynne Leach said she was “impressed with the Lab’s involvement with young people” by “exposing them to scientific discovery” through programs such as the Tri-Valley Science and Engineering Fair.

Leach said the Lab serves as a role model and is “a good neighbor to the Tri-Valley.”

David Mertes, Valley Care Medical Center Board chair, said the Lab “creates environments in which the human mind can be creative” and “an environment of discovery” shared with local academic institutions such as Las Positas College.

The role a contractor managing the Laboratory “should play in the community is very important,” he said.

Julie Orvis, a member of the Livermore Valley Joint Unified School District, echoed that sentiment, saying “community education is an essential feature recognized by the Lab’s current management.”

Orvis praised programs offered by the Edward Teller Education Center and the Lab’s Science and technology Education Program for providing science education programs for students and professional development for teachers.

Jeff Colvin of the Society for Professional Scientists and Engineers said the DOE/NNSA labs currently managed by UC must “continue in their critical contributions to the defense and security of the United States with high quality scientific research.”

Colvin suggested that any RFP should contain a provision that there be no separation of scientific mission and management. “The contract should cover all operations at each site under one contractor,” he said. “The contract must not be divided among several prime contractors for parts of the operation. And all current UC employees must remain as employees of a single contractor.”

He also stressed the importance of intellectual and scientific freedom. “Intellectual and scientific freedom shall be maintained to ensure the highest quality science. The contractor must foster an environment con-

ducive to scientific inquiry, free exchange of ideas, rights for employees to publish their work and participate in open debate at scientific meetings at the labs and elsewhere.”

Laura Gilliom, director of the Lab’s University Relations Program, discussed her experiences at Sandia National Laboratory and current career at Livermore and how “each is profoundly reflective of the type of contractor building the culture.”

Among the strengths of Livermore’s culture are its academic aspects, Gilliom said, notably “A full technical seminar schedule, the expectation of excellent scientific credentials and continuing scientific engagement throughout the management structure, broad and ongoing collaborations, a willingness to explore risky ideas, and a commitment to maintaining a presence in the international science community.”

She emphasized the importance of “academic freedom to express one’s informed technical judgment and one’s personal opinion about issues of national importance, provided, of course, that the security boundaries of our work here are met.”

“Any proposed contractor and any proposed contract for these laboratories need to show how it will protect the technical integrity of the Laboratory and its staff. In short, the ability of a scientist ‘to call it like he or she sees it’ must be protected,” she concluded.



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